

## 300245 - ERM - Structures and Strength of Materials

Coordinating unit:	300 - EETAC - Castelldefels School of Telecommunications and Aerospace Engineering	
Teaching unit:	751 - DECA - Department of Civil and Environmental Engineering	
Academic year:	2017	
Degree:	BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERINGS/BACHELOR'S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING - NETWORK ENGINEERING (AGRUPACIÓ DE SIMULTANEÏTAT) (Syllabus 2015). (Teaching unit Compulsory) BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERING (Syllabus 2015). (Teaching unit Compulsory) BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERING/BACHELOR'S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2015). (Teaching unit Compulsory) BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERING/BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2015). (Teaching unit Compulsory)	
ECTS credits:	4,5	Teaching languages: Catalan

### Teaching staff

Coordinator:	Definit a la infoweb de l'assignatura.
Others:	Definit a la infoweb de l'assignatura.

### Degree competences to which the subject contributes

#### Specific:

1. CE 1 AERO. Capacidad para la resolución de los problemas matemáticos que puedan plantearse en la ingeniería. Aptitud para aplicar los conocimientos sobre: álgebra lineal; geometría; geometría diferencial; cálculo diferencial e integral; ecuaciones diferenciales y en derivadas parciales; métodos numéricos; algorítmica numérica; estadística y optimización. (CIN/308/2009, BOE 18.2.2009)
2. CE 15 AERO. Conocimiento adecuado y aplicado a la Ingeniería de: Los principios de la mecánica del medio continuo y las técnicas de cálculo de su respuesta. (CIN/308/2009, BOE 18.2.2009)

#### Transversal:

3. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.
4. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.
5. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.
6. EFFECTIVE USE OF INFORMATION RESOURCES - Level 1. Identifying information needs. Using collections, premises and services that are available for designing and executing simple searches that are suited to the topic.

### Learning objectives of the subject



## 300245 - ERM - Structures and Strength of Materials

### Study load

Total learning time: 112h 30m	Hours large group:	36h	32.00%
	Hours medium group:	0h	0.00%
	Hours small group:	0h	0.00%
	Guided activities:	13h 30m	12.00%
	Self study:	63h	56.00%

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### Content

<p>(ENG) INTRODUCCIÓ, CENTRE GEOMÈTRIC, MOMENT D'INERCIÀ</p>	<p>Learning time: 23h Theory classes: 8h Practical classes: 0h Guided activities: 2h Self study : 13h</p>
<p>Description: x</p>	
<p>(ENG) ELASTICITAT BIDIMENSIONAL</p>	<p>Learning time: 10h Theory classes: 4h Practical classes: 0h Guided activities: 1h Self study : 5h</p>
<p>Description: x</p>	
<p>(ENG) CÀLCUL D'ESTRUCTURES ISOSTÀTIQUES I LLEIS D'ESFORÇOS</p>	<p>Learning time: 25h Theory classes: 8h Practical classes: 0h Guided activities: 2h Self study : 15h</p>
<p>Description: x</p>	
<p>(ENG) ESFORÇ AXIAL</p>	<p>Learning time: 16h Theory classes: 6h Guided activities: 1h Self study : 9h</p>
<p>Description: x</p>	

## 300245 - ERM - Structures and Strength of Materials

(ENG) MOMENT FLECTOR	Learning time: 29h 30m Theory classes: 8h Practical classes: 0h Guided activities: 3h 30m Self study : 18h
Description: x	
(ENG) ESFORÇ TALLANT	Learning time: 6h Theory classes: 2h Practical classes: 0h Guided activities: 1h Self study : 3h
Description: x	
EXAMS	Learning time: 3h Guided activities: 3h
Description: EXAMS	

## 300245 - ERM - Structures and Strength of Materials

### Bibliography

#### Basic:

Cervera Ruiz, Miguel. Mecánica y resistencia de materiales. Barcelona: Ed. CIMNE, 2012. ISBN 9788494024399.

Cervera Ruiz, Miguel; Blanco Díaz, Elena. Mecánica de estructuras. Vol. 1, Resistencia de materiales [on line]. Barcelona: Edicions UPC, 2001-2002 Available on: <<http://hdl.handle.net/2099.3/36196>>. ISBN 8483015188.

#### Complementary:

Hibbeler, R. C. Structural analysis. 8th ed. Upper Saddle River [etc.]: Prentice Hall, 2012. ISBN 9780132570534.

Hibbeler, R. C.; Murrieta Murrieta, Jesús Elmer; Juárez Luna, Gelacio; Sepúlveda García, David. Análisis estructural. 8a ed. Naucalpán de Juárez, México: Pearson, 2012. ISBN 9786073210621.

Leet, Kenneth M.; Uang, Chia-Ming; Gilbert, Anne M. Fundamentals of structural analysis. 3th ed. Boston [etc.]: McGraw-Hill, 2008. ISBN 9780071259293.

West, Harry H.; Geshwindner, Louis F. Fundamentals of structural analysis. 2nd ed. New York: Wiley, 2002. ISBN 0471355569.

#### Others resources: